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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,878	10/09/2003	Vincent L. Chiang	50617.C1/C-3532.0	8100
22428	7590	07/13/2005	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			BAUM, STUART F	
		ART UNIT		PAPER NUMBER
				1638

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/681,878	CHIANG ET AL.
Examiner	Art Unit	
Stuart F. Baum	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 09 October 2003.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) \_\_\_\_\_ is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) 1-45 are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 2 and 16, drawn to a method for modifying the genome of a gymnosperm comprising cloning one or more angiosperm DNA sequences which code for genes necessary for production of angiosperm syringyl lignin monomer units, wherein the sequence or sequences are operably linked to a promoter in antisense orientation, and inserting said DNA into a gymnosperm, or wherein the antisense mRNA is from a 4-coumarate CoA ligase gene, classified in class 800, subclass 286 for example.
  - II. Claims 5, 24, 33-34 and 44, drawn to a method for modifying the genome of a gymnosperm comprising cloning a 4-coumarate CoA ligase (4CL) DNA sequence, wherein the DNA sequence is operably linked to a promoter to form an expression cassette; a loblolly pine containing said expression cassette, an isolated 4-coumarate CoA ligase sequence of SEQ ID NO:4, classified in class 800, subclass 278 for example.
  - III. Claims 5, 23, 33-34 and 44, drawn to a method for modifying the genome of a gymnosperm comprising cloning a bifunctional-O-Methyl transferase (bi-OMT) DNA sequence, wherein the DNA sequence is operably linked to a promoter to form an expression cassette; a loblolly pine containing said expression cassette, an

isolated bi-OMT sequence of SEQ ID NO:3, classified in class 800, subclass 298 for example.

IV. Claims 5, 21, 33-34, 36-37, 40, 42, and 44, drawn to a method for modifying the genome of a gymnosperm comprising cloning a ferulic acid-5-hydroxylase FA5H-1 DNA sequence, wherein the DNA sequence is operably linked to a promoter to form an expression cassette; a loblolly pine containing said expression cassette, an isolated ferulic acid-5-hydroxylase FA5H-1 sequence of SEQ ID NO:1, classified in class 800, subclass 290 for example.

V. Claims 5, 21, 33-34, 38-39, 41, 43-45, drawn to a method for modifying the genome of a gymnosperm comprising cloning a ferulic acid-5-hydroxylase FA5H-2 DNA sequence, wherein the DNA sequence is operably linked to a promoter to form an expression cassette; a loblolly pine containing said expression cassette, an isolated ferulic acid-5-hydroxylase FA5H-2 sequence of SEQ ID NO:2, classified in class 800, subclass 319 for example.

Claims 1, 3-4, 6-15, 17-20, 30-32 and 35 link inventions II-V. The restriction requirement between the linked inventions is subject to the nonallowance of the linking claims, claims 1, 3-4, 6-15, 17-20, 30-32 and 35. Upon the allowance of the linking claim(s), the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise including all the limitations of the allowable linking claim(s) will be entitled to examination in the instant application. Applicant(s) are advised that if any such claim(s) depending from or including all the limitations of the allowable linking claim(s) is/are presented in a continuation or divisional application, the claims of the continuation or divisional

application may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

- VI. Claim 25, drawn to an isolated DNA encoding an enzyme involved in the biosynthesis of one or more syringyl lignin monomer units, classified in class 536, subclass 23.1 for example.
- VII. Claims 26 and 29, drawn to an isolated PAL promoter of SEQ ID NO:5, classified in class 536, subclass 24.1 for example.
- VIII. Claims 27 and 29, drawn to an isolated 4CL1B promoter of SEQ ID NO:6, classified in class 536, subclass 24.1 for example.
- IX. Claims 28 and 29, drawn to an isolated 4CL3B promoter of SEQ ID NO:7, classified in class 536, subclass 24.1 for example.

Claims 5, 33-34 and 44 are generic to Groups II-V and will be evaluated to the extent they read on the elected invention.

Claim 29 is generic to Groups VII-IX and will be evaluated to the extent it reads on the elected invention.

- 2. The inventions are distinct, each from the other because of the following reasons
- 3. Inventions II-V are unrelated to each other, as are Inventions VI-IX, unrelated to each other. Applicant is reminded that nucleotide sequences either encoding different proteins or specifying specific expression patterns are structurally distinct chemical compounds and are

unrelated to one another, as are different proteins structurally distinct chemical compounds and unrelated to one another. These sequences are thus deemed to normally constitute **independent and distinct** inventions within the meaning of 35 U.S.C. 121. Absent evidence to the contrary, each such sequence is presumed to represent an independent and distinct invention, subject to a restriction requirement pursuant to 35 U.S.C. 121 and 37 CFR 1.141 et seq (see MPEP 803.04 and 2434). This requirement is not to be construed as a requirement for an election of species, since each nucleotide and amino acid sequence is not a member of a single genus of invention, but constitutes an independent and patentably distinct invention.

4. Inventions II-V and VII-IX are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the processes of Groups II-V use a materially different product than that claimed in Groups VI-IX, and the products of Groups VII-IX can be used as promoters.

5. Inventions II-V and invention VI are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product of Group VI can be used for hybridization reactions.

6. Inventions I and Inventions II-IX are unrelated to each other. Applicants are claiming a nucleic acid molecule in sense and antisense orientation as well as plants and methods

comprising nucleic acid molecules in either sense or antisense orientation. It is recognized in the art, that nucleic acid molecules in antisense orientation are used to down-regulate the expression or reduce the activity of a specific protein whereas over-expressing a nucleic acid molecule in sense orientation is used to upregulate or increase the activity of a specific protein. The two different sequences, i.e., antisense and sense, are distinct one from the other in structure and function, and utilize different mechanisms. Therefore, each one requires a separate search and examination that is unique to nucleic acid molecules operably linked to promoters in either sense or antisense orientation.

7. Because these inventions are distinct for the reasons given above, have acquired a separate status in the art as shown by their different classification, and the literature and sequence searches required for each of the Groups are not required for another of the Groups, restriction for examination purposes as indicated is proper.

8. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

9. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart F. Baum whose telephone number is 571-272-0792. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson can be reached on 571-272-0804. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.



Stuart F. Baum Ph.D.

Patent Examiner

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July 6, 2005